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10/587,379	10/23/2006	Kazuaki Yazawa	545/98	8306

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EXAMINER	
HOFFBERG, ROBERT JOSEPH	
ART UNIT	PAPER NUMBER
2835	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,379	YAZAWA, KAZUAKI	
	Examiner	Art Unit	
	ROBERT J. HOFFBERG	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-14* is/are pending in the application.

4a) Of the above claim(s) *9,11 and 13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-8, 10, 12 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/26/06* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3 and 7-8 have been considered but are moot in view of the amended claims and the new ground(s) of rejection.

2. A new ground of rejection has been cited for claims 10, 12 and 14.

Claim Objections

3. Claims 1-6 are objected to because of the following informalities: claim 1, line 5, "a surface" should be "an another surface". Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 101 that form the basis for the rejections under this section made in this Office action:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 12 is rejected under 35 U.S.C. 101.

Claim 12 is directed to non-statutory subject matter. Claim 12 is a computer program product that lacks any claimed computer structure. See MPEP 2106.01.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. (US 2004/0019452).

With respect to Claim 1, Song et al. teach an electronic device cooling apparatus comprising: a primary cooling unit (180) which is disposed so as to face a surface ("S" bottom surface) of an electronic device (Fig. 3, "S"); an auxiliary cooling unit (170) which is disposed so as to face a surface ("S" top surface) of the electronic device different from the surface that the primary cooling unit faces; and a controller (190) which drives the auxiliary cooling unit so as to cool the electronic device (see Fig. 2), wherein the primary cooling unit is based on a cooling mechanism different from that of the auxiliary cooling unit (primary cooling unit is based on conduction and the auxiliary is based upon spray cooling).

With respect to Claims 3 and 5-6, Song et al. further teach wherein the cooling capacity of the auxiliary cooling unit per unit time is higher than that of the primary cooling unit (spray cooling with liquid nitrogen [para. 0032] has greater cooling capacity than conduction cooling) (claim 3), the auxiliary cooling unit is provided with a cooling nozzle (170A), and the controller controls a coolant introduced in the cooling nozzle and drives the auxiliary cooling unit by delivering a jet (spray from 170A) of coolant from the cooling nozzle (claim 5) and a temperature measuring unit (181) which measures the temperature of a surface of the electronic device, wherein when a rise in the measured temperature per unit time (para. 0011, lines 12-13) exceeds a predetermined threshold value (para. 0011, line 14), the controller drives the auxiliary cooling unit to cool the electronic device (para. 0011, lines 14-17) (claim 6)

With respect to Claim 7, Song et al. teach an electronic device cooling apparatus comprising: a primary cooling unit (180) which is disposed so as to face a predetermined surface ("S" bottom surface) of an electronic device (Fig. 3, "S"); an auxiliary cooling unit (170) which delivers a jet (spray from 170A) of coolant to the electronic device via a through hole (170A) provided in a substrate (170) that faces a surface ("S" top surface) of the electronic device different from the predetermined surface; and a controller (190) which drives the auxiliary cooling unit so as to cool the electronic device (see Fig. 2). (Examiner note: substrate is not further defined in the claim and can be any surface).

With respect to Claim 8, Song et al. an electronic device cooling apparatus comprising: a heat dissipating mechanism (180) which is disposed so as to face a predetermined surface ("S" bottom surface) of an electronic device (Fig. 3, "S") and which dissipates heat generated from the predetermined surface; an auxiliary cooling unit (170) which delivers a jet (spray from 170A) of coolant to the electronic device via a through hole (170A) provided in a substrate (170) that faces a surface ("S" top surface) of the electronic device different from the predetermined surface; and a controller (190) which drives the auxiliary cooling unit so as to cool the electronic device (see Fig. 2). (Examiner note: substrate is not further defined in the claim and can be any surface).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10,12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (US 2004/0019452).

With respect to Claim 10, Song et al. teach an electronic device cooling method comprising: measuring the temperature (181) of a surface ("S" bottom surface) of an electronic device (Fig. 3, "S"); determining whether the measured temperature exceeds a first predetermined threshold value (para. 0031, line 6); cooling the surface of the electronic device by a first cooling unit (170) when the measured temperature exceeds the first predetermined threshold value; determining whether a rise in the temperature of the surface of the electronic device per unit time exceeds a second predetermined threshold value (para. 0031, lines 6-7) as a result of time variation; and cooling the surface of the electronic device by the first cooling unit (170) when the rise exceeds the second predetermined threshold value. Song et al. fail to disclose a second cooling unit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the first cooling unit and have a redundant second cooling unit for greater reliability of operation of the electronic device, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. (Examiner's note: The first and second cooling units can be based in the same cooling principle because the claim does not define any structure of the cooling units).

With respect to Claim 12, Song et al. teach a computer program product for controlling the cooling of an electronic device, comprising: a measuring module (181)

which measures the temperature of a surface ("S" bottom surface) of the electronic device (Fig. 3, "S"); a first determining module which determines whether the measured temperature exceeds a first predetermined threshold value (para. 0031, line 6); a first cooling module which causes a first cooling unit (170) to cool the surface of the electronic device when the measured temperature exceeds the first predetermined threshold value; a second determining module which determines whether a rise in the temperature of the surface of the electronic device per unit time exceeds a second predetermined threshold value (para. 0031, lines 6-7) as a result of time variation; and a second cooling module which causes the first cooling unit (170) to cool the surface of the electronic device when the rise exceeds the second predetermined threshold value. Song et al. fail to disclose a second cooling unit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the first cooling unit and have a redundant second cooling unit for greater reliability of operation of the electronic device, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. (Examiner's note: The first and second cooling units can be based in the same cooling principle because the claim does not define any structure of the cooling units).

8. With respect to Claim 14, Song et al. teach a computer readable recording medium having embodied thereon a computer program product for controlling the cooling of an electronic device, the computer program product comprising: a measuring module which measures the temperature (181) of a surface ("S" bottom surface) of the

electronic device (Fig. 3, "S"); a first determining module which determines whether the measured temperature exceeds a first predetermined threshold value (para. 0031, line 6); a first cooling module which causes a first cooling unit (170) to cool the surface of the electronic device when the measured temperature exceeds the first predetermined threshold value; a second determining module which determines whether a rise in the temperature of the surface of the electronic device per unit time exceeds a second predetermined threshold value (para. 0031, lines 6-7) as a result of time variation; and a second cooling module which causes the first cooling unit (170) to cool the surface of the electronic device when the rise exceeds the second predetermined threshold value. Song et al. fail to disclose a second cooling unit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the first cooling unit and have a redundant second cooling unit for greater reliability of operation of the electronic device, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. (Examiner's note: The first and second cooling units can be based in the same cooling principle because the claim does not define any structure of the cooling units).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Song et al. (US 7,008,804) is the issued patent of US 2004/0019452. Starner (US 6,901,317) and Henry et al. (US 7,334,418) disclose using the measured temperature exceeds the first predetermined threshold value in

combination with determining whether a rise in the temperature per unit time exceeds a second predetermined threshold value as a result of time variation to control the operation of a single cooling unit for more accurate temperature control.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayprakash Gandhi can be reached on (571) 272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH 6/18/08

/Robert J. Hoffberg/
Examiner, Art Unit 2835

/Jayprakash N Gandhi/
Supervisory Patent Examiner, Art Unit 2835